

Application No.: 10/529,183

Amendment Dated: January 30, 2007

BASIS FOR THE AMENDMENT

New Claims 5-18 have been added as supported by the specification and the claims as originally filed.

No new matter is believed to have been added by entry of this amendment. Entry and favorable reconsideration are respectfully requested.

Upon entry of this amendment Claims 1-18 will now be active in this application.

INTERVIEW SUMMARY

Applicants wish to thank Examiner Hon for the helpful and courteous discussion with Applicants' Representative on April 18, 2007. During this discussion it was noted that Kawada et al (US 5,158,619) do not disclose or suggest a liquid crystal alignment treating agent for nematic liquid crystals. Further, new Claims 5 and 18 were discussed as not being anticipated by Kawada et al.

REMARKS

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

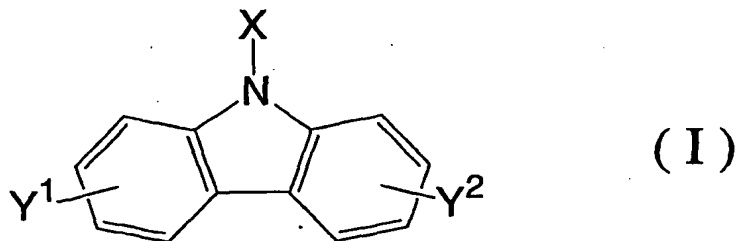
The rejection of Claims 1-3 under 35 U.S.C. § 102(b) as anticipated by or Kawada et al (US 5,158,619) and the rejection of Claim 4 under 35 U.S.C. § 103(a) over Kawada et al (US 5,158,619) in view of Matsuo are respectfully traversed.

The present invention as set forth in **Claim 1** relates to a **liquid crystal alignment treating agent** to obtain an alignment film **for nematic liquid crystal** by rubbing treatment after forming a coating film, comprising:

at least one polymer selected from the group consisting of

(i) a polyamic acid obtained by reacting one or more tetracarboxylic dianhydrides with one or more diamines comprising at least one diamine having a structure represented by the following formula (I), and

(ii) a polyimide obtained by cyclodehydration of such a polyamic acid



wherein X is a hydrogen atom or a monovalent organic group, and each of Y¹ and Y² is a primary amino group or a monovalent organic group having one primary amino group.

Kawada et al fail to disclose or suggest a **liquid crystal alignment treating agent** to obtain an alignment film **for nematic liquid crystal**. In order for a claim to be anticipated, a reference must disclose each limitation. Thus, Claims 1-3 are not anticipated by Kawada et al.

Regarding Claim 4, Kawada et al and Matsuo fail to disclose or suggest the superior results obtained using the liquid crystal alignment treating agent as claimed.

The present inventors have found that by incorporating a specific structure to the liquid crystal alignment treating agent of polyimide type, the liquid alignment property and the resistance against rubbing treatment of the coating film will be excellent, and it is possible to improve electrical properties such as the property of accumulation charge and the property of voltage retention. See page 4, starting at line 4 of the specification.

Further, as shown in Table 1 at page 30 of the specification (reproduced below), the polyamic acids according to the present invention exhibit superior LC orientation property and rubbing durability compared to the Comparative polyamic acids.

TABLE 1

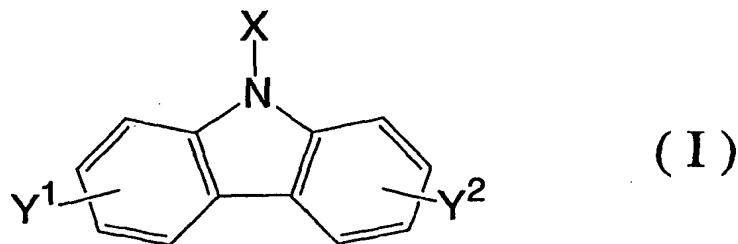
	Polymer	Voltage retention (%)		Accumulated voltage (V)	Liquid crystal orientation property	Rubbing durability
		23°C	90°C			
Ex.						
1	A-1	99	96	0	Good	Good
2	A-1	99	86	0	Good	Good
3	A-2	99	97	0	Good	Good
4	A-3	99	94	0.2	Good	Good
Comp.						
Ex.						
1	B-1	99	77	0.8	Good	No good
2	B-2	99	93	0.3	No good	No good
3	B-3	99	88	1.5	Good	Good

This is not disclosed by Kawada et al and/or Matsuo.

Claim 5 relates to a **rubbed liquid crystal alignment film**, comprising:

at least one polymer selected from the group consisting of

(i) a polyamic acid obtained by reacting one or more tetracarboxylic dianhydrides with one or more diamines comprising at least one diamine having a structure represented by the following formula (I)



wherein X is a hydrogen atom or a monovalent organic group, and each of Y¹ and Y² is a primary amino group or a monovalent organic group having one primary amino group; and

(ii) a polyimide obtained by cyclodehydration of said polyamic acid;

wherein said rubbed liquid crystal alignment film is capable of aligning a nematic liquid crystal.

Claim 18 relates to a **liquid crystal device**, comprising:

a pair of substrates having electrodes,

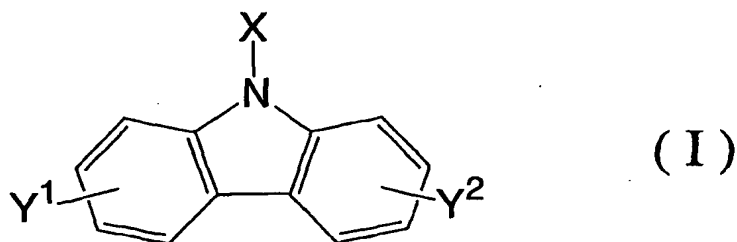
a **rubbed liquid crystal alignment film** on each of the substrates, and

a nematic liquid crystal sandwiched between the rubbed liquid crystal alignment films;

wherein said rubbed liquid crystal alignment film, comprises:

at least one polymer selected from the group consisting of

(i) a polyamic acid obtained by reacting one or more tetracarboxylic dianhydrides with one or more diamines comprising at least one diamine having a structure represented by the following formula (I)



wherein X is a hydrogen atom or a monovalent organic group, and each of Y¹ and Y² is a primary amino group or a monovalent organic group having one primary amino group; and

(ii) a polyimide obtained by cyclodehydration of said polyamic acid;

wherein said rubbed liquid crystal alignment film is capable of aligning said nematic liquid crystal.

Kawada et al and Matsuo fail to disclose or suggest a rubbed liquid crystal alignment film, as claimed in Claim 5, which is capable of aligning a nematic liquid crystal; or a liquid crystal device, as claimed in Claim 18, comprising a rubbed liquid crystal alignment film on each of the substrates, wherein said rubbed liquid crystal alignment film is capable of aligning said nematic liquid crystal; or the superior results obtained using the liquid crystal alignment film as claimed and as discussed above.

Therefore, the rejection of Claims 1-3 under 35 U.S.C. § 102(b) as anticipated by or Kawada et al (US 5,158,619) and the rejection of Claim 4 under 35 U.S.C. § 103(a) over Kawada et al (US 5,158,619) in view of Matsuo are believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of these rejections is respectfully requested.

Applicants respectfully request that the Examiner acknowledge that the references cited in the **Information Disclosure Statement, filed in the above-identified application**

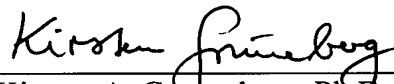
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on **December 28, 2006**, have been considered. For the Examiner's convenience a copy of Form PTO 1449 as filed on December 28, 2006, is attached herewith.

This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

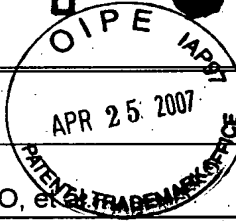


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SHEET 1 OF 1

Form PTO 1449
(Modified)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY DOCKET NO.
268535US0PCTSERIAL NO.
10/529,183

LIST OF REFERENCES CITED BY APPLICANT

APPLICANT

Mitsumasa KONDO, et al.

FILING DATE

March 24, 2005

GROUP

1772

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	5,773,559	06/30/1998	Tsuyoshi MIYAMOTO, et al.			
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
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	AN						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO					
	AP					
	AQ					
	AR					
	AS					
	AT					
	AU					
	AV					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	
	AX	
	AY	
	AZ	<input type="checkbox"/> Additional References sheet(s) attached

Examiner

Date Considered

*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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